

June 4, 2024

**FINANCIAL ASSISTANCE CENTER
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10 CSR 20-4.050, the department has performed our review on the proposed action below:

PROJECT INFORMATION:

Project Identification: Burlington Junction Wastewater Treatment Plant

Applicant: City of Burlington Junction

Project No.: C295870-01

City: Burlington Junction

County: Nodaway

State: Missouri

Total Project Amount: \$1,254,434

Total Clean Water State Revolving Fund Eligible Costs: \$1,254,434

- Potential Loan: \$564,495
- Potential Grant: \$689,939

COMMUNITY DESCRIPTION:

Location: The Burlington Junction Wastewater Treatment Facility (WWTF) is located approximately 0.7 miles west of the City of Burlington Junction in northwestern Nodaway County.

Population, Present and Projected, and Design Year: The 2010 population for the City of Burlington Junction is 537, and the Burlington Junction WWTF design population is 760. Current estimates have the population essentially staying the same for the city in the design life of the project.

Current Methods of Waste Treatment: The current Burlington Junction WWTF is a three-cell lagoon. The flow exits from the third lagoon cell to an effluent weir box prior to discharge. The average actual flow is 55,000 gallons per day (gpd) and an average design flow of 76,000 gpd.



PROJECT DESCRIPTION:

Purpose and Need: The City of Burlington Junction needs to meet permit disinfection requirements to attain compliance for the existing WWTF. Additionally, the existing WWTF utilizes lagoon cells that have an existing berm height that is level with the projected 100-year floodplain, so it has been determined that raising the lagoon berms will help mitigate potential issues that may occur in a flooding event.

Description of Project: The proposed project will primarily involve the installation of a chlorine disinfection system to the existing WWTF and the raising of the lagoon berm cell height to avoid potential flooding concerns. Disinfection will be accomplished downstream of the third lagoon cell using sodium hypochlorite for chlorination and sodium bisulfite for de-chlorination, to remove residual chlorine before discharging. The lagoon berms will be raised two feet above their current levels to surpass the 100-year floodplain. Additionally, other upgrades are planned for the WWTF as a part of the project, including the replacement of the existing transfer structures between lagoon cells and the addition of riprap to the lagoon cell berms to limit the effects of erosion.

Design Factors: The design factors in the current operating permit for the Burlington Junction WWTF include a design population of 760, with a design flow of 100 gpd per capita, leading to a design flow of 76,000 gpd. The proposed construction will not alter the design parameters of the facility, so the design population and design flow will stay the same. The proposed changes will help the facility meet *E. coli* limits.

Receiving Stream: The receiving stream for the Burlington Junction WWTF is the Nodaway River. The Nodaway River has the following beneficial uses identified: protection of aquatic life, irrigation for use on crops for human or livestock consumption, secondary contact recreation, livestock and wildlife watering, whole body contact recreation that supports swimming, and human health protection. The permit limits for the facility were derived to protect those beneficial uses.

ALTERNATIVES CONSIDERED:

Collection System:

Not Selected – Alternative No. 1 considers the city collection system and need for improvements to maintain the operation and integrity of the system. This would primarily be accomplished by ongoing CCTV inspections and then performing rehabilitation or replacement of collection lines based on the findings. This alternative is intended to be done in the future, but ultimately was not within the scope of the proposed work being considered in this case.

Wastewater Treatment:

Not Selected – Alternative No. 1 explores a no-discharge alternative for wastewater treatment utilizing land application. Given the design flow of the WWTF and the maximum application rate, a total of 43 acres would be required as available application area to maintain treatment for the city. Additionally, storage capacity would need to be added to the existing treatment lagoon cells to provide sufficient holding capacity for land application requirements. Only one location was found that would provide sufficient application area, but a combination of distance, cost, potential odors, and poor soil conditions made land application a non-viable alternative.

Not Selected – Alternative No. 2 considers post-lagoon treatment via installation of a polishing cell utilizing submerged attached growth reactor (SAGR) technology for improved ammonia treatment prior to discharge. Along with using the polishing cell for nitrification, additional upgrades to the existing lagoon cells are also proposed. These include the addition of surface aeration for improved dissolved oxygen in the lagoon cells, replacement of transfer structures between lagoon cells, removal of sludge in the lagoon cells, addition of riprap to the lagoon cells for erosion control, and raising the lagoon berm walls to be above the height for the 100-year floodplain. UV disinfection for meeting effluent limits is also included as a part of this proposed alternative. The total project cost of this alternative is \$1,651,100, with a total present worth of \$2,419,500.

Not Selected – Alternative No. 3 looks at the option of replacing the existing lagoon cell treatment with a packaged mechanical treatment facility to meet effluent limits. The general layout of the plant would incorporate a combination of basins for flow equalization, sludge holding, aeration, and clarification, along with additional appurtenances for operation and improved treatment, including bar screens, pumps, coarse bubble diffusers, blowers, and controls. This alternative would also utilize tablet chlorination to achieve disinfection requirements. The mechanical plant would be built either immediately adjacent to the existing lagoon cells or in the place of the existing WWTF. The total project cost of this alternative is \$1,931,000, with a total present worth of \$3,023,800.

Selected – Alternative No. 4 was developed after additional discussion with the department, as it was determined that ammonia criteria were not included in the latest permit for the facility and that pursuing disinfection-only was a viable alternative. This allows the needed treatment to be accomplished, while reducing the amount needing to be constructed. In this alternative, disinfection would be the major upgrade to the facility, designed to meet *E. coli* limits. As a result, this alternative involves upgrades to the existing lagoon treatment system, by replacing the weir gate and transfer structure, pump station updates and placing of riprap, raising the berms of the treatment lagoons for improved flood resiliency, and the installation of a chlorine disinfection system in the treatment train. The total project cost of this alternative is \$1,131,300, with a present worth of \$1,523,000.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE:

Alternative No. 4 was determined to be the most cost effective, practical, and feasible. With known future limits for the city being met by this alternative and site-specific ammonia criteria not identified, this alternative allows for the current issues experienced by the facility to be addressed, while keeping the project cost reasonable for the community.

ENVIRONMENTAL IMPACT SUMMARY:

1. Primary:
 - a. Construction: Temporary surface disruption, blowing dust, and noise from vehicles and equipment will occur during construction, but the City of Burlington Junction expects these impacts to be minor and temporary in nature.
 - b. Environmental: This project will have beneficial environmental impacts, as the addition of disinfection into the treatment process will improve the water quality of the receiving stream. Additionally, raising the berms of the existing lagoon cells will help prevent potential negative environmental impacts that could occur in a severe flooding situation.
 - c. Financial: The proposed new sewer rate with the selected alternative for Burlington Junction would be \$45.52, assuming a usage rate of 5,000 gallons per month.
2. Secondary:
 - a. Population Impacts: The City of Burlington Junction anticipates no significant change in population trends resulting from this project. No significant relocation of people or structures are expected to result from this project. This project will not serve any new areas.
 - b. Land Use and Trends: The City of Burlington Junction anticipates no significant change in land use trends resulting from this project. The city expects no development of sensitive areas.
 - c. Environmental: The City of Burlington Junction does not expect secondary environmental impacts caused by this project.
3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Best Management Practices and good engineering practices should minimize noise, blowing dust, and erosion normally associated with construction. The city will promptly restore disturbed areas.
4. Irreversible and Irretrievable Commitment of Resources: Fuel and construction materials will be irretrievably committed to this project. Future funds will be committed to the operation and maintenance of the system.

PUBLIC PARTICIPATION:

2. Public Involvement: The City of Burlington Junction held a public meeting on July 10, 2023, at the Burlington Junction City Hall, in the City of Burlington Junction, Missouri.
3. Public Opposition or Opinions: The public expressed no adverse opinions to the project.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

1. Facility Plan Dated: February 28, 2022
Prepared By: Lamp Rynearson
Environmental Assessment: March 30, 2023
Prepared By: Northwest Missouri Regional Council of Governments
2. Federal:
 - a. U.S. Fish and Wildlife Service (USFWS)
 - b. U.S. Army Corps of Engineers (USACE)
4. State:
 - a. Missouri DNR – State Historic Preservation Office
 - b. Missouri DNR – Missouri Geological Survey
 - c. Missouri Department of Conservation
 - d. Missouri Office of Administration – Federal Assistance Clearinghouse
5. Consulting Engineer: Lamp Rynearson
9001 State Line Road, Suite 200
Kansas City, MO 64114
6. In accordance with the National Historic Preservation Act Section 106, notice was given to all tribes that may attach a religious or cultural significance to historic properties in the region that may be affected by this undertaking.

Positive Environmental Effects to be Realized from the Proposed Project: This project will address *E. coli* limits for the WWTF, improving the quality of the effluent being discharged to the receiving stream. Raising the berms will also help improve flood resilience for the WWTF, which also improves environmental outcomes for the surrounding area.

Reasons for Concluding There Will Be No Significant Impacts: The proposed project will have a positive impact on water quality and will not result in any significant adverse impacts on rare or endangered species, floodplains, wetlands, recreational areas, cultural/archaeological sites, or air quality. Population densities and land use trends will not be significantly affected. Appropriate mitigation measures will be implemented for minor impacts, which are expected to be temporal in nature.

This action is taken on the basis of a careful review of the facility plan and supporting documentation on file in the office of the Missouri Department of Natural Resources' Financial Assistance Center at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public review upon request Monday-Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to Joshua Brown, P.E., of the Missouri Department of Natural Resources, Financial Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176, during this period. E-mail comments will be accepted at the following address: DNR.SRFPPublicNotice@dnr.mo.gov. Please include the project name and number in all comment letters. Thank you.

Sincerely,

FINANCIAL ASSISTANCE CENTER

Lauren Graessle

Lauren Graessle, P.E.
Director

Joshua Brown

Joshua Brown, P.E.
Professional Engineer

June 4, 2024

Date

LG:jbc

Attachment

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Missouri Department of Natural Resources
Missouri Geological Survey
Environmental Geology Section
P.O. Box 250
Rolla, MO 65402-0250

Missouri Department of Natural Resources
Division of State Parks
State Historic Preservation Office
P.O. Box 176
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SRF File C295870-01

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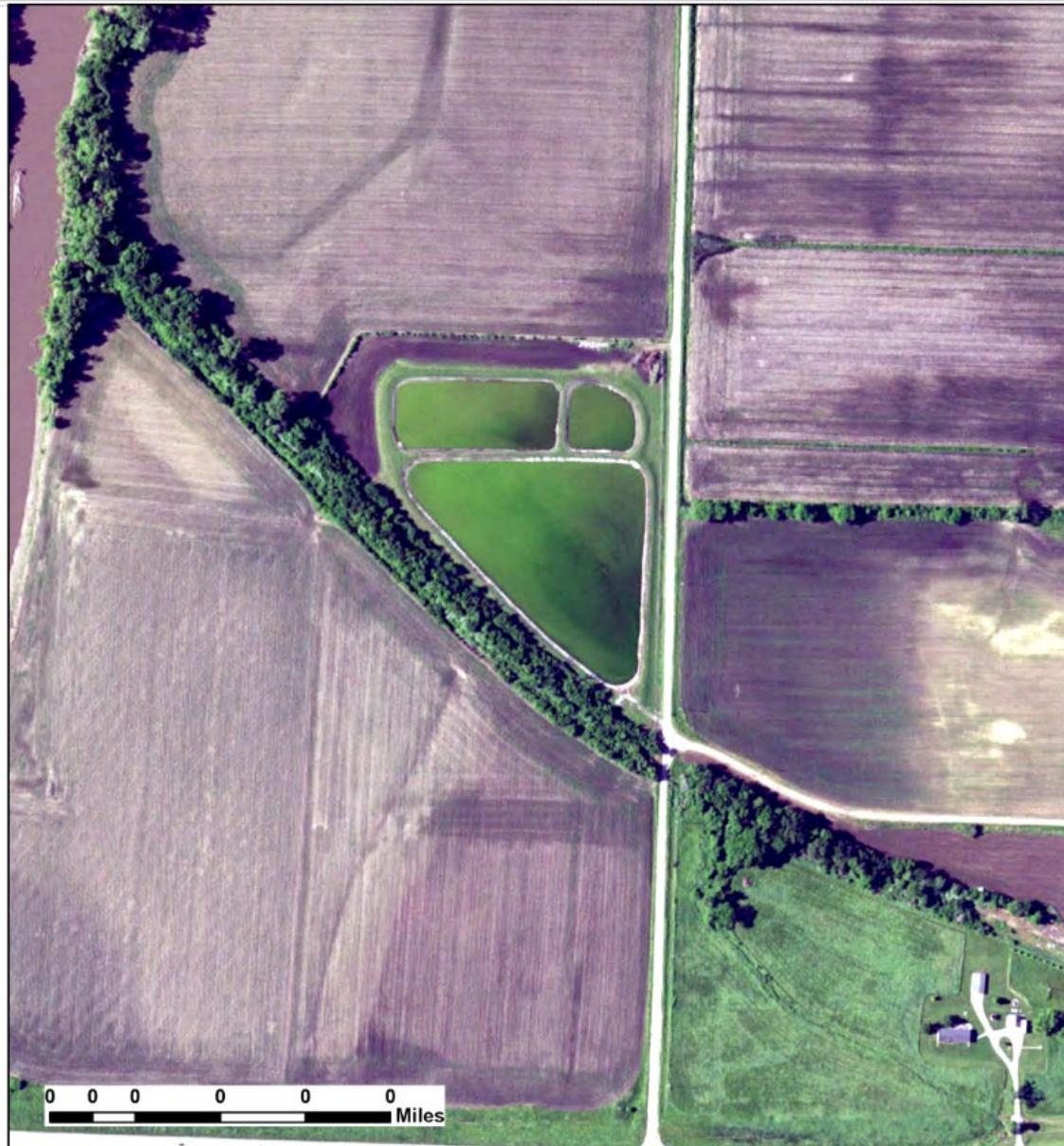
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Burlington Junction WWTF



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